

# PATENT ABSTRACTS OF JAPAN

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LTD

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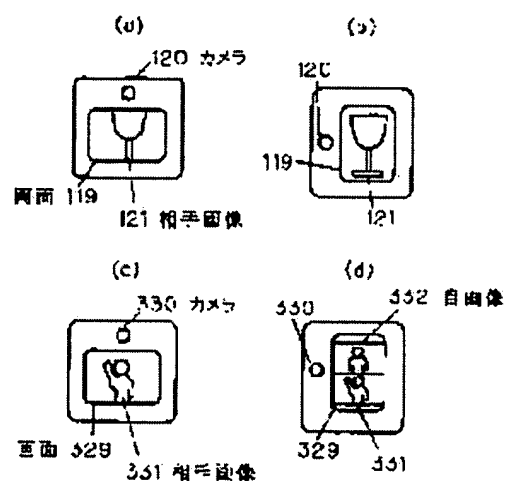
(72)Inventor : IKEDA KOJI

## (54) PICTURE COMMUNICATION EQUIPMENT

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To reduce invalid pictures in a screen in the case of dividing the screen to display plural pictures at the same time by switching vertical or horizontal length by only operation on the side of its own equipment in a portable picture communication equipment.

**SOLUTION:** A display signal of a horizontally long picture in its own equipment is transmitted to an opposite picture communication equipment by a signal transmission part. Own picture information is transmitted after processing to be a picture required by the opposite picture communication equipment by the picture turn display signals of its own equipment and the opposite equipment, and the picture communication equipment uses the screen 119 by making vertical/horizontal length to display an opposite picture 121.



When a picture compositing instruction signal is OFF, a picture processing part outputs opposite picture information and when the signal is ON, processed picture information obtained by compositing, rotating and reducing own picture information and opposite picture information is outputted and displayed. At the time of displaying an opposite picture 331, the screen 329 is used by making horizontally long and at the time of displaying the opposite picture 331 and its own picture 332, the picture 329 is used by making vertically long.

## LEGAL STATUS

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11.09.2000

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[Patent number]	3603409
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[Date of registration]	08.10.2004
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[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

DERWENT- 2004-712316

ACC-NO:

DERWENT- 200470

WEEK:

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**TITLE:** Image communication device e.g. video telephone has display  
~~screen divided into several display areas by parallel lines~~  
arranged in parallel to short side, so that several images  
are displayed simultaneously after rotating screen

**PATENT-ASSIGNEE:** MATSUSHITA DENKI SANGYO KK[MATU]

**PRIORITY-** 1995JP-0239449 (September 19, 1995) , 2004JP-0129302  
**DATA:** (April 26, 2004)

**PATENT-FAMILY:**

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 2004274787	A September 30, 2004	N/A	014	H04N 007/14

**APPLICATION-DATA:**

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
JP2004274787A	Div ex	1995JP-0239449	September 19, 1995
JP2004274787A	N/A	2004JP-0129302	April 26, 2004

**INT-CL (IPC):** H04N007/14

**RELATED-ACC-NO:** 1997-252433

**ABSTRACTED-PUB-NO:** JP2004274787A

**BASIC-ABSTRACT:**

NOVELTY - The display screens (119,329) are divided into several display areas by the parallel lines formed in parallel to the short side of a screen, so that several images are displayed simultaneously at the display areas, after rotating the screen by 90 deg. .

USE - Image communication device e.g. video telephone.

ADVANTAGE - Enables to display several images with same aspect ratio, simultaneously.

DESCRIPTION OF DRAWING(S) - The figure shows the front view of the display screen. (Drawing includes non-English language text).

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screens 119,329

camera 120,330

images 121,331

**CHOSEN-** Dwg.1/21  
**DRAWING:**

**TITLE-** IMAGE COMMUNICATE DEVICE VIDEO TELEPHONE DISPLAY SCREEN  
**TERMS:** DIVIDE DISPLAY AREA PARALLEL LINE ARRANGE PARALLEL SHORT  
SIDE SO IMAGE DISPLAY SIMULTANEOUS AFTER ROTATING SCREEN

**DERWENT-CLASS:** W01 W02

**EPI-CODES:** W01-C01B3; W01-C01G4; W02-F08B3;

**SECONDARY-ACC-NO:**

**Non-CPI Secondary Accession Numbers:** N2004-564848

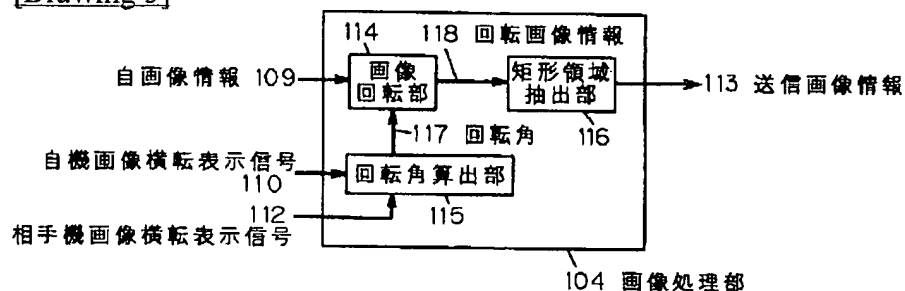
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## DRAWINGS

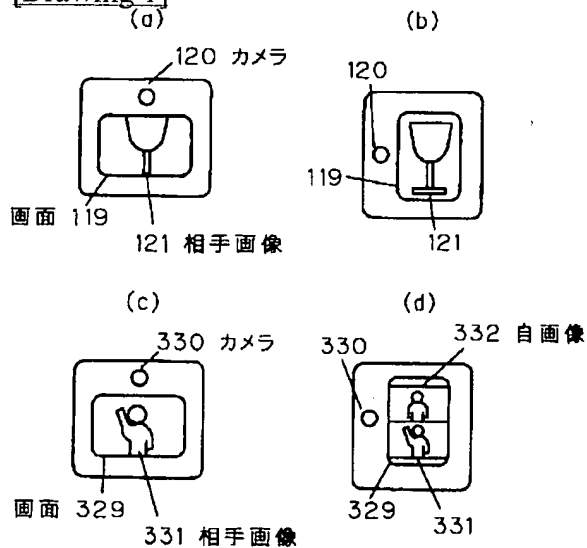
[Drawing 3]



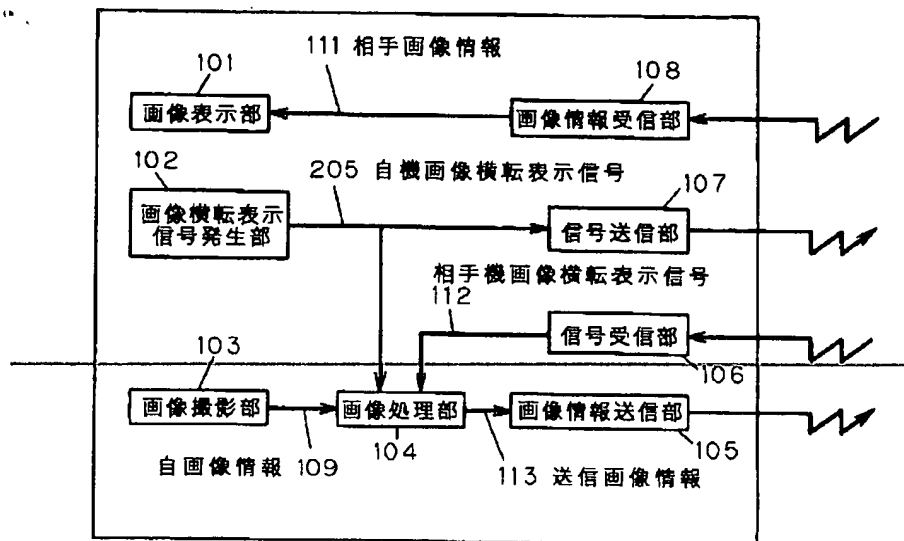
[Drawing 8]



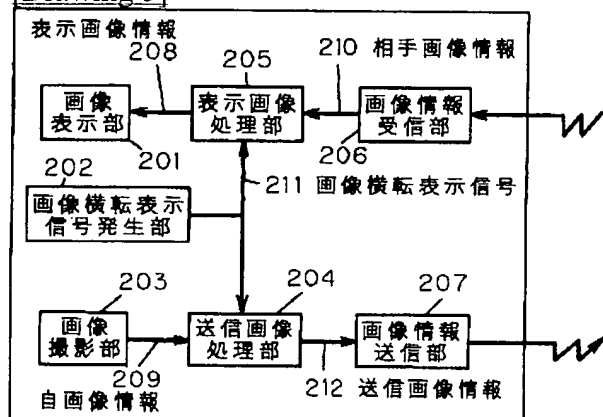
[Drawing 1]



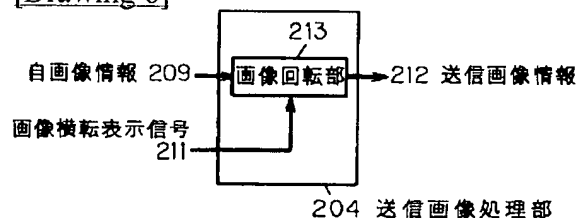
[Drawing 2]



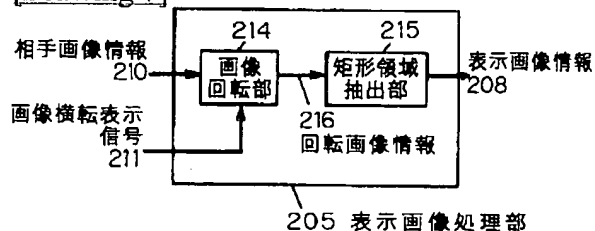
[Drawing 5]



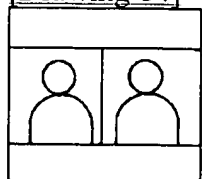
[Drawing 6]



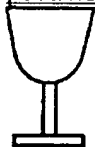
[Drawing 7]



[Drawing 14]



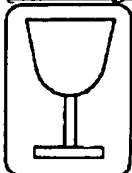
[Drawing 15]



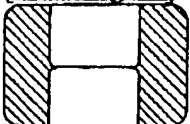
[Drawing 16]



[Drawing 17]

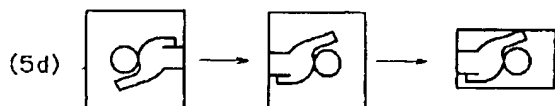
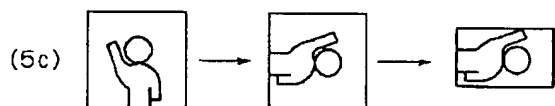
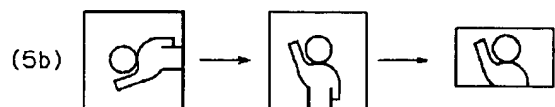
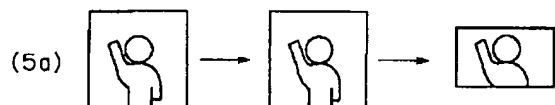


[Drawing 18]



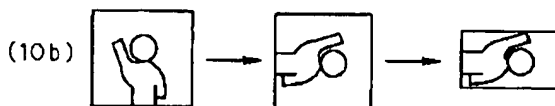
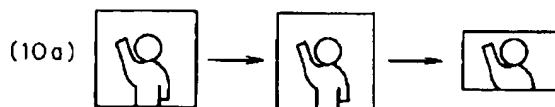
[Drawing 4]

自画像情報    回転画像情報    送信画像情報

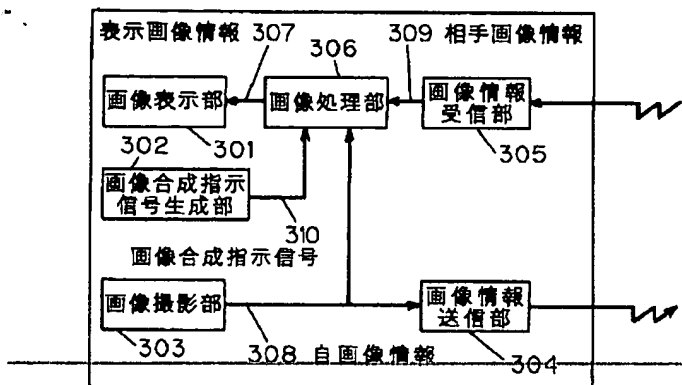


[Drawing 9]

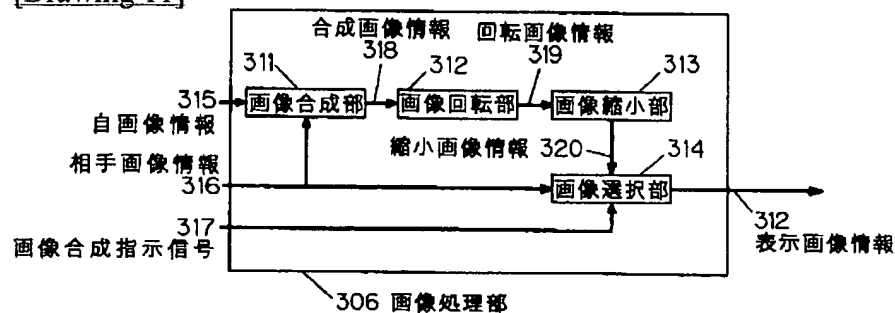
相手画像情報    回転画像情報    表示画像情報



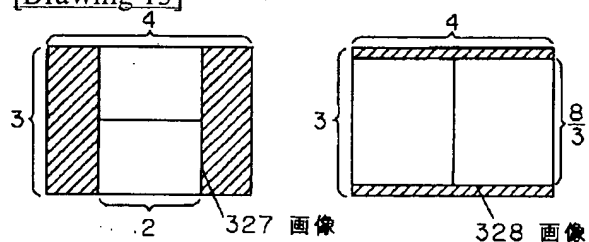
[Drawing 10]



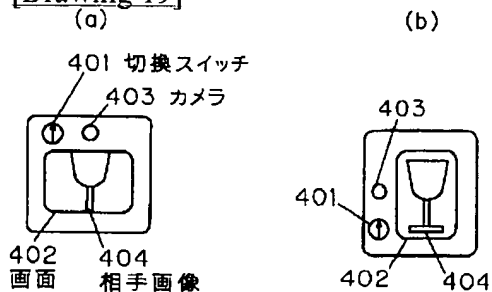
[Drawing 11]



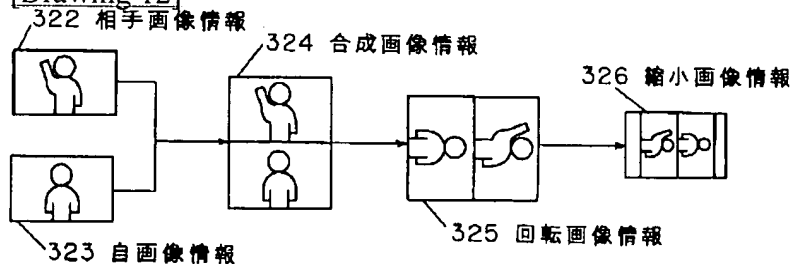
[Drawing 13]



[Drawing 19]

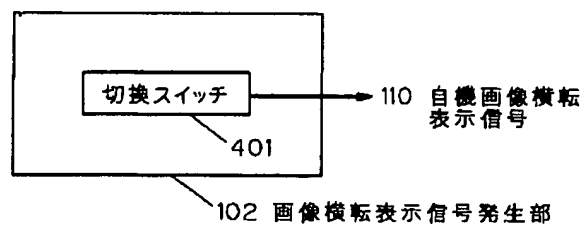


[Drawing 12]

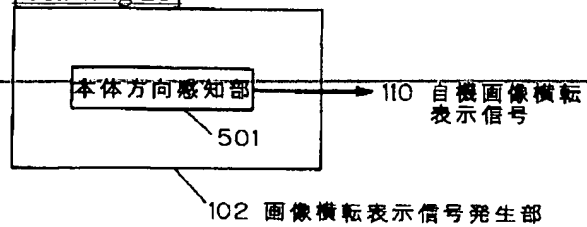


[Drawing 20]





[Drawing 21]



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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

[Drawing 1] (a) is drawing showing the busy condition when displaying the oblong image in the 1st, 2nd, and 5th examples of this invention.

(b) is drawing showing the busy condition when displaying the longwise image in the 1st, 2nd, and 5th examples of this invention.

(c) is drawing showing the busy condition when displaying only the partner image in the 3rd example of this invention.

(d) is drawing showing the busy condition when displaying simultaneously the 3rd partner image and self-portrait in an example of this invention.

[Drawing 2] The block diagram of the pictorial communication equipment in the 1st example of this invention

[Drawing 3] The block diagram of the image-processing section in the 1st example of this invention

[Drawing 4] Drawing explaining actuation of the image-processing section in the 1st example of this invention

[Drawing 5] The block diagram of the pictorial communication equipment in the 2nd example of this invention

[Drawing 6] The block diagram of the transmitting image-processing section in the 2nd example of this invention

[Drawing 7] The block diagram of the display image processing section in the 2nd example of this invention

[Drawing 8] Drawing explaining actuation of the transmitting image-processing section in the 2nd example of this invention

[Drawing 9] Drawing explaining actuation of the display image processing section in the 2nd example of this invention

[Drawing 10] The block diagram of the pictorial communication equipment in the 3rd example of this invention

[Drawing 11] The block diagram of the image-processing section in the 3rd example of this invention

[Drawing 12] Drawing explaining actuation of the image-processing section in the 3rd example of this invention

[Drawing 13] Drawing explaining the effectiveness in the 3rd example of this invention

[Drawing 14] Drawing showing the means of displaying of the conventional example

[Drawing 15] Drawing showing the overview of a longwise body

[Drawing 16] Drawing which displayed the longwise body on the oblong screen with the means of displaying of the conventional example

[Drawing 17] Drawing which displayed the longwise body on the longwise screen with the means of displaying of the conventional example

[Drawing 18] Drawing which displayed two or more images with the means of displaying of the conventional example

[Drawing 19] Drawing showing the appearance and busy condition of pictorial communication equipment in the 4th example of this invention

[Drawing 20] The block diagram of the image sideslip display signal generator in the 4th example of this invention

[Drawing 21] The block diagram of the image sideslip display signal generator in the 5th example of this invention

**[Description of Notations]**

103, 203, 303 Image photography means

105, 207, 304 Image information transmitting means  
108, 206, 305 Image information receiving means  
101, 201, 301 Image display means  
102 202 Image sideslip display signal generation means  
107 Signal Transmitting Means  
106 Signal Receiving Means  
104 306 Image-processing means  
115 Angle-of-Rotation Calculation Means  
114 Image Revolution Means  
~~116 205 Rectangle field extract means~~

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204 Transmitting Image-Processing Means  
205 Display Image Processing Means  
213 214 Image revolution means  
302 Image Composition Indication Signal Generation Means  
306 Image-Processing Means  
311 Image Composition Means  
312 Image Revolution Means  
313 Image Cutback Means  
314 Image Selection Means  
401 Change-over Switch  
501 The Direction Sensing Means of Body

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PRIOR ART

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[Description of the Prior Art] Pictorial communication equipments, such as the conventional TV phone, fix an image display device, and show the image on the longwise or oblong screen. When displaying the image with which the ratios of the die length of a screen in every direction differ, the approach of making some screens a null and displaying an image, the approach of cutting some images and displaying it, and the approach of carrying out scaling of the image in the direction in every direction, and doubling and displaying an aspect ratio are taken. Moreover, the method which divides and displays a screen indicated by JP,2-67888,A as an approach of displaying a self-portrait and a receiving image simultaneously in a TV phone is proposed. The example of the display screen by the means of displaying of this conventional example is shown in drawing 14 .

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the pictorial communication equipment which communicates an image.

[0002]

[Description of the Prior Art] Pictorial communication equipments, such as the conventional TV phone, fix an image display device, and show the image on the longwise or oblong screen. When displaying the image with which the ratios of the die length of a screen in every direction differ, the approach of making some screens a null and displaying an image, the approach of cutting some images and displaying it, and the approach of carrying out scaling of the image in the direction in every direction, and doubling and displaying an aspect ratio are taken. Moreover, the method which divides and displays a screen indicated by JP,2-67888,A as an approach of displaying a self-portrait and a receiving image simultaneously in a TV phone is proposed. The example of the display screen by the means of displaying of this conventional example is shown in drawing 14.

[0003]

[Problem(s) to be Solved by the Invention] In the conventional image communication device, only the screen long to an one direction defined beforehand can be displayed. Therefore, when the overview of a long body is perpendicularly photoed as shown in drawing 15, and it displays on a long screen horizontally, as shown in drawing 16, a lateral margin part becomes large and the area of the body displayed to the area of a screen becomes small. That is, compared with the case where it displays on a longwise screen as shown in drawing 17, the image of a photographic subject becomes small. Horizontally, also when displaying the overview of a long body on a long screen perpendicularly, the same thing can say it.

[0004] If hard flow is made to rotate each other body 90 degrees in the case of a pocket mold image communication device, the form of a screen is changed to it being longwise oblong, and although it is usable, the form of a screen cannot be changed uniquely.

[0005] Moreover, when dividing a screen and displaying two or more images, an oblong screen is horizontally divided in the center section, and if two images are simultaneously displayed that the oblong image of a basis is reduced and the whole is settled, the part of the null as which an image is not displayed like the shadow area shown in drawing 18 will arise.

[0006] If an image is cut on the other hand according to the form where the screen was divided and two images are displayed simultaneously, one half of the parts of the original image cannot be displayed. When dividing a screen as mentioned above and displaying two or more images, the part which becomes invalid in the display screen or a display image arises.

[0007] then, this invention is uniquely longwise in the display screen at a self-opportunity side according to the configuration of the body to photo -- oblong -- changing -- displaying -- two or more images -- the display screen -- division -- when displaying simultaneously by things, it aims at decreasing the part which becomes invalid.

[0008]

[Means for Solving the Problem] This invention according to claim 1 uses the display screen of pictorial communication equipment for a lengthwise direction and a longitudinal direction.

[0009] An image sideslip display signal generation means to generate the self-opportunity image sideslip status signal with which this invention according to claim 2 shows the display direction of the image of a self-opportunity for pictorial communication equipment, A signal receiving means to receive the self-opportunity

image sideslip status signal by the side of the phase hand loom transmitted from a signal transmitting means to transmit a self-opportunity image sideslip status signal to said other party pictorial communication equipment, and other party pictorial communication equipment, and to generate a phase hand-loom image sideslip status signal, Self-portrait information is constituted from an image-processing means to process to transmitting image information from a self-opportunity image sideslip status signal and a phase hand-loom image sideslip status signal, and transmitting image information is transmitted to other party pictorial communication equipment with an image information transmitting means.

[0010] An angle-of-rotation calculation means by which this invention according to claim 3 computes the angle of rotation of an image for an image-processing means in pictorial communication equipment according to ~~claim 2 from a self-opportunity image sideslip status signal and a phase hand-loom image sideslip status signal,~~

An image revolution means to carry out revolution processing of the self-portrait information according to an angle of rotation, and to generate revolution image information, It constitutes from a rectangle field extract means to cut a rectangle field from revolution image information, and to generate transmitting image information. An angle-of-rotation calculation means When a self-opportunity image sideslip status signal is OFF, OFF and a phase hand-loom image sideslip status signal by making the sideslip direction of an image communication device forward 0 times, When ON and a phase hand-loom image sideslip status signal are [ self-opportunity image sideslip status signals ] OFF and -90 degrees and a self-opportunity image sideslip status signal are [ OFF and a phase hand-loom image sideslip status signal ] ON, a self-opportunity image sideslip status signal computes 180 degrees -90 degrees, when OFF and a phase hand-loom image sideslip status signal are ON.

[0011] This invention according to claim 4 constitutes a changeover switch for an image sideslip display signal generation means more in pictorial communication equipment according to claim 2, and generates ON of an image sideslip status signal, and OFF with said changeover switch.

[0012] This invention according to claim 5 senses the direction of a body in every direction for an image sideslip display signal generation means in pictorial communication equipment according to claim 2, and at the time of a body sideslip, an image sideslip status signal is turned ON, and when other, it constitutes \*\* from a direction sensing means of a body turned OFF.

[0013] This invention according to claim 6 constitutes partner image information from a display image processing means generate display image information from an image sideslip status signal, transmits transmitting image information to other party pictorial communication equipment with an image-information transmitting means, and displays display image information with an image-display means as an image sideslip display signal-generation means generate the image sideslip status signal which shows the display direction of an image for pictorial communication equipment, and a transmitting image-processing means process self-portrait information from an image sideslip status signal to transmitting image information.

[0014] This invention according to claim 7 carries out revolution processing -90 degrees, when an image sideslip status signal is ON about image information in a transmitting image-processing means in an image communication device according to claim 6. It constitutes from an image revolution means which outputs by not performing revolution processing when an image sideslip status signal is OFF. A display image processing means A transmitting image-processing means and the same image revolution means, It constitutes from a rectangle field extract means to cut a rectangle field from the revolution image information outputted from the image revolution means, and to generate said display image information.

[0015] This invention according to claim 8 constitutes an image sideslip display signal generation means from a changeover switch in pictorial communication equipment according to claim 6, and generates ON of an image sideslip status signal, and OFF with a changeover switch.

[0016] This invention according to claim 9 senses the direction of a body in every direction for an image sideslip display signal generation means in pictorial communication equipment according to claim 6, turns ON an image sideslip status signal at the time of a body sideslip, and when other, it constitutes it from a direction sensing means of a body turned OFF.

[0017] When dividing one screen and displaying two or more images, this invention according to claim 10 divides the display screen into the shorter side of a screen with at least one parallel lines which are parallel, rotates a display image 90 degrees, and is displayed simultaneously.

[0018] Compound an image composition indication signal generation means generate an image composition indication signal for pictorial communication equipment, and self-portrait information and partner image

information so that a long side may touch, and make it rotate 90 degrees to the sideslip direction and the hard flow of pictorial communication equipment, and this invention according to claim 11 constitutes from an image-processing means output the display image information reduced to the magnitude to which an image is settled in a screen, and expresses display image information as said image-display means.

[0019] An image composition means to output the synthetic image information to which this invention according to claim 12 compounded the image-processing means in pictorial communication equipment according to claim 11 so that a long side might touch self-portrait information and partner image information,

An image revolution means to output the revolution image information which rotated synthetic image information 90 degrees to the sideslip direction and hard flow of pictorial communication equipment, It constitutes from an image cutback means to output the cutback image information which reduced revolution image information to the magnitude settled in a screen, and an image selection means to choose cutback image information and to output as display image information when partner image information is chosen when an image composition indication signal is OFF, and an image composition indication signal is ON.

[0020] This invention according to claim 13 constitutes an image composition indication signal generating means from a changeover switch in pictorial communication equipment according to claim 11, and generates ON of an image composition indication signal, and OFF with a changeover switch.

[0021] This invention according to claim 14 senses the direction of a body in every direction for an image composition indication signal generating means in pictorial communication equipment according to claim 11, and at the time of a body sideslip, an image composition indication signal is turned ON, and when other, it constitutes \*\* from a direction sensing means of a body turned OFF.

[0022]

[Function] The screen where this invention according to claim 1 is longwise is made into length, looks at a screen, and an oblong screen looks at a screen horizontally.

[0023] This invention according to claim 2 processes self-portrait information based on a self-opportunity image sideslip status signal and a phase hand-loom image sideslip status signal, and transmits it to partner pictorial communication equipment.

[0024] This invention according to claim 3 is processed based on a self-opportunity image sideslip status signal and a phase hand-loom image sideslip status signal to the image information which partner pictorial communication equipment asks for self-portrait information.

[0025] This invention according to claim 4 follows a changeover switch, and turns on and turns off an image sideslip status signal.

[0026] This invention according to claim 5 turns ON an image sideslip status signal at the time of a body sideslip, and when other, it turns it OFF.

[0027] After processing based on an image sideslip status signal so that self-portrait information may have right up down one, it transmits to other party pictorial communication equipment, and this invention according to claim 6 displays partner image information according to the activity direction of a screen based on an image sideslip status signal.

[0028] This invention according to claim 7 processes self-portrait information so that it may have right up down one, and it processes partner image information so that it may suit in the activity direction of a screen.

[0029] This invention according to claim 8 follows a changeover switch, and turns on and turns off an image sideslip status signal.

[0030] This invention according to claim 9 turns ON an image sideslip status signal at the time of a body sideslip, and when other, it turns it OFF.

[0031] This invention according to claim 10 indicates the image of the aspect ratio of B:A/N by N individual on the screen of the aspect ratio of A:B (N is the natural number).

[0032] This invention according to claim 11 displays a partner image, when an image composition indication signal is OFF, when an image composition indication signal is ON, compounds a self-portrait and a partner image so that a long side may touch, and reduces and displays them to the magnitude to which it is made to rotate [ magnitude ] 90 degrees to hard flow, and an image is settled in a screen.

[0033] This invention according to claim 12 generates the synthetic image information which compounded self-portrait information and partner image information so that a long side might touch, and processes it to the revolution image information which rotated synthetic image information 90 degrees to the sideslip direction and hard flow of pictorial communication equipment. Furthermore, it reduces to the magnitude settled in a screen,

and revolution image information is made into cutback image information. When an image composition indication signal is OFF, partner image information is chosen, and when an image composition indication signal is ON, cutback image information is chosen and it outputs as display image information.

[0034] This invention according to claim 13 generates ON of an image composition indication signal, and OFF with a changeover switch.

[0035] This invention according to claim 14 turns ON an image composition indication signal at the time of a body sideslip, and when other, it turns it OFF.

[0036]

[Example]

~~(Example 1) It explains hereafter, referring to a drawing about the 1st example of this invention.~~

[0037] The configuration in the 1st example is explained first. Drawing 1 (a) expresses the busy condition of the image communication device of the 1st example when displaying an oblong image, and drawing 1 (b) expresses the busy condition of the image communication device of the 1st example when displaying a longwise image. Drawing 1 (a) is made into a standard busy condition, and drawing 1 (b) is made into the condition of using it, sideslipping a body.

[0038] Drawing 2 expresses the block diagram of the image communication device of the 1st example. The self-portrait information 109 generated in the image photography section 103 is changed into the transmitting image information 113 based on the self-opportunity image sideslip status signal 110 generated from the image sideslip display signal generator 102 in the image-processing section 104, and the phase hand-loom image sideslip status signal 112 received in the signal receive section 106, and is inputted into the image information transmitting section 105.

[0039] The self-opportunity image sideslip status signal 110 is inputted into the signal transmitting section 107, and the partner image information 111 generated in the image information receive section 108 is inputted into the image display section 101.

[0040] Drawing 3 expresses the block diagram of the image-processing section 104. Based on the self-opportunity image sideslip status signal 110 and the phase hand-loom image sideslip status signal 112, an angle of rotation 117 is computed in the angle-of-rotation calculation section 115. The self-portrait information 109 is processed in the image revolution section 114 to the revolution image information 118 based on an angle of rotation 117, and is processed in the rectangle field extract section 116 to the transmitting image information 113.

[0041] Next, the actuation of each part in the 1st example is explained. The image photography section 103 photos a self-portrait, and makes it the self-portrait information 109. The image sideslip display signal generator 102 turns OFF the self-opportunity image sideslip status signal 110, when using a body in the state of drawing 1 (a), and when using a body in the state of drawing 1 (b), it turns it ON. The signal transmitting section 107 transmits the self-opportunity image sideslip status signal 110 to other party pictorial communication equipment. The signal receive section 106 receives the self-opportunity image sideslip status signal which other party pictorial communication equipment transmits, and generates the phase hand-loom image sideslip display indication signal 112. The image information receive section 108 receives the transmitting image information which other party pictorial communication equipment transmits, and generates the partner image information 111. The image display section 101 displays the partner image information 111 on a screen. The image information transmitting section 105 transmits the transmitting image information 113 to partner pictorial communication equipment.

[0042] When the self-opportunity image sideslip status signal 110 is OFF, OFF and the phase hand-loom image sideslip status signal 112 the angle-of-rotation calculation section 115 0 times, When the time of the self-opportunity image sideslip status signals 110 being [ ON and the phase hand-loom image sideslip status signal 112 ] OFF or the self-opportunity image sideslip status signal 110 is ON, OFF and the phase hand-loom image sideslip status signal 112 -90 degrees, The self-opportunity image sideslip status signal 110 computes the angle of rotation 117 which they made 180 degrees when ON and the phase hand-loom image sideslip status signal 112 were ON. However, let the sideslip direction of a body, i.e., a counterclockwise rotation, be a forward hand of cut.

[0043] Only an angle of rotation 117 rotates the self-portrait information 109, and the image revolution section 114 generates the revolution image information 117 for it. The rectangle field extract section 116 cuts the rectangle field aligned with the display screen from the revolution image information 117, and generates the



transmitting image information 113.

[0044] Drawing 4 expresses the example of operation in the image-processing section 104. When the self-opportunity image sideslip status signal 110 is OFF, OFF and the phase hand-loom image sideslip status signal 112 in order of 5a of \*\* When the self-opportunity image sideslip status signal 110 is OFF, ON and the phase hand-loom image sideslip status signal 112 in order of 5b When the self-opportunity image sideslip status signals 110 are [ OFF and the phase hand-loom image sideslip status signal 112 ] ON, in order of 5c, as for image information, ON and the phase hand-loom image sideslip status signal 112 change in 5d order, when the self-opportunity image sideslip status signal 110 is ON.

[0045] Since an image longwise [ the other party image communication device ] and oblong can be displayed ~~without moving the body by the side of a self-opportunity by the above, and a longwise and oblong image can~~ be displayed, without a self-opportunity side moving the other party body similarly, a more legible image can be chosen.

[0046] In addition, although the body was counterclockwise rotated in the 1st example and the longwise image was displayed, by making the image sideslip display signal generator 102 and the angle-of-rotation calculation section 115 correspond on the basis of a clockwise rotation, a body is rotated clockwise and a longwise image can be displayed.

[0047] Furthermore, although drawing 1 (a) was made into the standard busy condition in the 1st example, an equivalent function is realizable by making the image sideslip display signal generator 102 and the angle-of-rotation calculation section 115 drawing 1 (b) correspond also as a standard busy condition.

[0048] (Example 2) It explains hereafter, referring to a drawing about the 2nd example of this invention.

[0049] The configuration of the 2nd example is explained first. Since it is the same as the 1st example, the busy condition of the pictorial communication equipment of the 2nd example is omitted.

[0050] Drawing 5 expresses the block diagram of the image communication device of the 2nd example. The self-portrait information 209 generated in the image photography section 203 is processed to the transmitting image information 212 based on the image sideslip signal 211 in the transmitting image-processing section 204, and is inputted into the image information transmitting section 207. The partner image information 210 generated in the image information receive section 206 is processed to the display image information 208 based on the image sideslip status signal 211 in the display image processing section 205, and is inputted into the image display section 201.

[0051] Drawing 6 expresses the block diagram of the transmitting image-processing section 204. The self-portrait information 209 is processed in the image revolution section 213 to the transmitting image information 212 based on the image sideslip status signal 211.

[0052] Drawing 7 expresses the block diagram of the display image processing section 205. The partner image information 210 is processed in the image revolution section 214 to the revolution image information 216 based on the image sideslip status signal 211, and is processed in the rectangle field extract section 215 to the display image information 208.

[0053] Actuation of each part in the 2nd example is explained below. Since it is the same as the 1st example, actuation of the image photography section 203, the image information transmitting section 207, and the image information receive section 206 is omitted. The image sideslip display signal generator 202 turns OFF the image sideslip status signal 211, when using a body in the state of drawing 1 (a), and when using a body in the state of drawing 1 (b), it turns it ON. The image display section 201 displays the display image information 208 on a screen.

[0054] The image revolution section 213 outputs by not performing revolution processing, when the image sideslip status signal 211 is OFF about the self-portrait information 209, makes it rotate 90 degrees clockwise at the time of ON, outputs it, and is taken as the transmitting image information 212.

[0055] Drawing 8 expresses the example of operation in the transmitting image-processing section 204. 9a is an example of operation in case the image sideslip status signal 211 is OFF, and 9b is an example of operation in case the image sideslip status signal 211 is ON. Thus, in every condition, as for the transmitting image-processing section 204, a body performs an image processing so that the vertical direction of transmitting image information may become right.

[0056] The image revolution section 214 outputs by not performing revolution processing, when the image sideslip status signal 211 is OFF about the partner image information 210, makes it rotate 90 degrees clockwise at the time of ON, outputs it, and is taken as the revolution image information 216. The revolution image

information 216 is cut with the rectangle field extract section 215 according to a screen, and turns into the display image information 208.

[0057] Drawing 9 expresses the example of operation in the display image processing section 205. 10a is an example of operation in case the image sideslip status signal 211 is OFF, and 10b is an example of operation in case the image sideslip status signal 211 is ON. Thus, the display image processing section 205 performs an image processing so that the display image information 208 according to the busy condition of a body may be acquired.

[0058] As mentioned above, a longwise and oblong image can be displayed only by the actuation by the side of a self-opportunity, without moving the other party body, and a more legible image can be chosen.

~~[0059] In addition, although the body was counterclockwise rotated in the 2nd example and the longwise image was displayed, by making the image sideslip display signal generator 202 and the image revolution sections 213 and 214 correspond on the basis of a clockwise rotation, a body is rotated clockwise and a longwise image can be displayed.~~

[0060] Although drawing 1 (a) was furthermore made into the standard busy condition in the 2nd example, an equivalent function is realizable by making the image sideslip display signal generator 202 and the image revolution sections 213 and 214 drawing 1 (b) correspond also as a standard busy condition.

[0061] (Example 3) It explains hereafter, referring to a drawing about the 3rd example of this invention.

[0062] The configuration in the 3rd example is explained first. Drawing 1 (c) expresses the busy condition of the image communication device of the 3rd example when displaying only a partner image, and drawing 1 (d) expresses the busy condition when displaying a partner image and a self-portrait simultaneously.

[0063] Drawing 10 expresses the block diagram of the image communication device of the 3rd example. The self-portrait information 308 generated in the image photography section 303 is inputted into the image transmitting section 304. The partner image information 309 generated in the image information receive section 305 is processed with the self-portrait information 308 in the image-processing section 306 based on the image composition indication signal 310, turns into the display image information 307, and is inputted into the image display section 301.

[0064] Drawing 11 expresses the block diagram of the image-processing section 306. The self-portrait information 315 and the partner image information 316 are inputted into the image composition section 311, and the synthetic image information 318 is generated.

[0065] The synthetic image information 318 is inputted into the image revolution section 312, and the revolution image information 319 is generated. The revolution image information 319 will become, if it is inputted into the image cutback section 313 and the cutback image information 320 is generated. The cutback image information 320 and the partner image information 316 are inputted into the image selection section 314, and the display image information 321 is generated from the image selection section 314 based on the image composition indication signal 317.

[0066] Next, actuation of each part in the 3rd example is explained. Since it is the same as the 2nd example, actuation of the image photography section 303 and the image receive section 305 omits actuation of the 1st example, and the image transmitting section 304 and the image display section 301. In the image composition indication signal generation section 302, when displaying only the image of the other party and displaying OFF, and the image and self-portrait of the other party simultaneously, the image composition indication signal 310 of ON is generated.

[0067] In the image composition section 311, the self-portrait information 315 and the partner image information 316 are compounded so that a long side may touch, and the synthetic image information 318 is generated. In the image revolution section 312, the synthetic image information 318 is rotated 90 degrees clockwise, and the revolution image information 319 is generated. The image cutback section 313 reduces the revolution image information 319 to the magnitude settled into a screen, and generates the cutback image information 320. The image selection section 314 outputs the cutback image information 320 for the partner image information 316 as display image information 321 at the time of ON, when the image composition indication signal 317 is OFF.

[0068] Drawing 12 is an example of operation from the image composition section 311 in the image-processing section 316 to the image cutback section 313. The partner image information 322 and the self-portrait information 323 are compounded in the image composition section 311, turn into the synthetic image information 324, it rotates in the image revolution section and they turn into the revolution image information

325, and it is reduced in the image cutback section 313, and they turn into the cutback image information 326. Then, the partner image information 322 or the cutback image information 326 is chosen in the image selection section 314, and it is displayed on a screen in the image display section 301.

[0069] It compares whether only in which, compared with the conventional approach, the image of the 3rd example can display drawing 13 greatly. If the aspect ratio of the screen of the 3rd example is set to 4:3, by the conventional approach, it becomes like an image 327 and one half of screens becomes an image, in the 3rd example, it will become like an image 328 and eight ninths of screens will become an image.

[0070] When displaying simultaneously, without deleting selectively the image of the other party, and the image by the side of a self-opportunity as mentioned above, a legible bigger image than the time of using a screen oblong can be obtained.

[0071] (Example 4) It explains hereafter, referring to a drawing about the 4th example of this invention.

[0072] The configuration in the 4th example is explained first. Drawing 19 expresses the 4th appearance and busy condition of an image communication device of an example. As for 401, a circuit changing switch and 402 are the partner images with which the screen of pictorial communication equipment and 403 were displayed on the camera, and 404 was displayed on the screen. The circuit changing switch 401 is rotary system, and is turned on in the location of OFF and drawing 19 (b) in the location of drawing 19 (a).

[0073] Since it is the same as that of the 1st example, the configuration of the pictorial communication equipment of the 4th example is omitted.

[0074] Drawing 20 expresses the block diagram of the image sideslip signal generator 102 of the 4th example. A changeover switch 401 outputs the self-opportunity image sideslip status signal 110.

[0075] Next, the actuation of each part in the 4th example is explained. if a circuit changing switch 401 is made into the location of drawing 19 (a) -- the self-opportunity image sideslip status signal 110 -- OFF -- becoming -- henceforth -- the 1st example -- the same -- operating -- a body -- the condition of drawing 19 (a) -- Screen 402 -- the partner image 404 -- the vertical direction -- it is displayed correctly. if a circuit changing switch 401 is made into the location of drawing 19 (b) -- the self-opportunity image sideslip status signal 110 -- ON -- becoming -- henceforth -- the 1st example -- the same -- operating -- a body -- the condition of drawing 1 (b) -- Screen 402 -- the partner image 404 -- the vertical direction -- it is displayed correctly.

[0076] Thus, in the 4th example, the display screen can be used now by turning on and turning off a changeover switch 401, changing it oblong and longwise. In addition, although the rotary switch was used as a circuit changing switch, what outputs binary [ of ON and OFF ] can be used instead, for example, a toggle switch, or a multipoint switch or a slide switch may be used.

[0077] (Example 5) It explains hereafter, referring to a drawing about the 5th example of this invention.

[0078] The configuration in the 5th example is explained first. Since it is the same as that of the 1st example, the busy condition of the pictorial communication equipment of the 5th example is omitted.

[0079] Moreover, since the configuration of the pictorial communication equipment of the 5th example is the same as that of the 1st example, it omits.

[0080] Drawing 21 expresses the block diagram of the image sideslip signal generator 102 of the 5th example. 501 is the direction sensor of a body. The direction sensor 501 of a body outputs the self-opportunity image sideslip status signal 110.

[0081] It shall be fixed to the location which is turned off in the condition of drawing 1 (a), and is turned on in the condition of drawing 1 (b), using a mercury switch as a direction sensor 501 of a body.

[0082] Next, the actuation of each part in the 5th example is explained. If a body is changed into the condition of drawing 1 (a), the direction sensor 501 of a body will output the signal of OFF, and will turn OFF the self-opportunity image sideslip status signal 110. the following 1st example -- the same -- operating -- Screen 119 -- the partner image 121 -- the vertical direction -- it is displayed correctly. When a body is changed into the condition of drawing 1 (b), the direction sensor 501 of a body outputs the signal of ON, and turns ON the self-opportunity image sideslip status signal 110. the following 1st example -- the same -- operating -- Screen 119 -- the partner image 121 -- the vertical direction -- it is displayed correctly.

[0083] Thus, the display screen can be used now by making the condition of a body into drawing 1 (a) and drawing 1 (b) in the 5th example, changing it oblong and longwise. In addition, although the mercury switch was used as a direction sensor of a body, what senses change of an inclination can be used instead, for example, an angle sensor or a gravity switch may be used.

[0084]

[Effect of the Invention] By invention according to claim 1, a display of the image of two kinds of configurations is attained.

[0085] By invention according to claim 2, the display configuration of the other party image can be specified by the receiving side, and a display becomes it is legible and possible about the other party photographic subject. After processing the image information transmitted and received between pictorial communication equipment by the transmitting side, it can realize a function, without changing the amount of information of the conventional example, since it is sent to a receiving side.

[0086] The image information for which is a transmitting agency and partner pictorial communication equipment asks is generable with invention according to claim 3.

~~[0087] According to a changeover switch, a longwise screen and an oblong screen can be changed by claim 4~~  
and invention according to claim 8.

[0088] A longwise screen and an oblong screen can be changed only by making a body sideslip or returning it by claim 5 and invention according to claim 9.

[0089] By this invention according to claim 6, the display configuration of the other party image can be specified by the receiving side, and a display becomes it is legible and possible about the other party photographic subject. The signal transmitting section in claim 2 and a signal receive section can be excluded by processing image information in a transmitting side and a receiving side. However, in order to perform an image processing also in a receiving side, the image information transmitted and received between pictorial communication equipment increases from the conventional example.

[0090] Regardless of the condition of partner pictorial communication equipment, the image demanded is generable with invention according to claim 7.

[0091] When displaying the image of the same aspect ratio as a screen on two or more coincidence by invention according to claim 10, it becomes possible to display more greatly than the time of not rotating a screen.

[0092] By invention according to claim 11, a self-portrait and a partner image can be displayed more greatly than the conventional example.

[0093] By invention according to claim 12, a partner image and the compound image can be changed and displayed according to an image composition indication signal.

[0094] By invention according to claim 13, a partner image and the compound image can be changed with a changeover switch.

[0095] The image and partner image which were compounded by making a body sideslip or returning it by invention according to claim 14 can be changed.

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[Translation done.]

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CLAIMS

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## [Claim(s)]

[Claim 1] An image photography means to photo a self-portrait and to generate self-portrait information, and an image information transmitting means to transmit said self-portrait information to other party pictorial communication equipment, Pictorial communication equipment characterized by using the display screen for a lengthwise direction and a longitudinal direction in the pocket mold pictorial communication equipment possessing an image information receiving means to receive the image information transmitted from said other party image \*\*\*\*\*, and to generate partner image information, and an image display means to display said partner picture signal.

[Claim 2] An image sideslip display signal generation means to generate the self-opportunity image sideslip status signal which shows the display direction of the image of a self-opportunity, A signal receiving means to receive the self-opportunity image sideslip status signal by the side of the phase hand loom transmitted from a signal transmitting means to transmit said self-opportunity image sideslip status signal to said other party pictorial communication equipment, and said other party pictorial communication equipment, and to generate a phase hand-loom image sideslip status signal, Pictorial communication equipment according to claim 1 which possesses an image-processing means to process said self-portrait information to transmitting image information from said self-opportunity image sideslip status signal and said phase hand-loom image sideslip status signal, and transmits said transmitting image information to said other party pictorial communication equipment with said image information transmitting means.

[Claim 3] An angle-of-rotation calculation means by which an image-processing means computes the angle of rotation which rotates an image from said self-opportunity image sideslip status signal and said phase hand-loom image sideslip status signal, An image revolution means to carry out revolution processing of said self-portrait information based on said angle of rotation, and to generate revolution image information, A rectangle field extract means to cut a rectangle field from said revolution image information, and to generate said transmitting image information is provided. Said angle-of-rotation calculation means When said self-opportunity image sideslip status signal is OFF, OFF and said phase hand-loom image sideslip status signal by making forward the sideslip direction of said image communication device 0 times, When said self-opportunity image sideslip status signal is OFF, ON and said phase hand-loom image sideslip status signal -90 degrees, The image communication device according to claim 2 with which -90 degrees and said self-opportunity image sideslip status signal compute 180 degrees when OFF and said phase hand-loom image sideslip status signal are ON when said self-opportunity image sideslip status signals are [ OFF and said phase hand-loom image sideslip status signal ] ON.

[Claim 4] An image sideslip display signal generation means is pictorial communication equipment according to claim 2 which consists of image sideslip display signal generation means to provide a changeover switch and to generate ON of an image sideslip status signal, and OFF with said changeover switch.

[Claim 5] An image sideslip display signal generation means is pictorial communication equipment according to claim 2 which consists of direction sensing means of a body which sense the direction of a body in every direction, turn ON an image sideslip status signal at the time of a body sideslip, and are turned OFF when other.

[Claim 6] An image sideslip display signal generation means to generate the image sideslip status signal which shows the display direction of an image, A transmitting image-processing means to process said self-portrait information from said image sideslip status signal to transmitting image information, Pictorial communication equipment according to claim 1 which possesses a display image processing means to generate display image

information for said partner image information from said image sideslip status signal, transmits said transmitting image information to said other party pictorial communication equipment with said image information transmitting means, and displays said display image information with said image display means. [Claim 7] When said image sideslip status signal is ON, revolution processing of the image information is carried out -90 degrees. When said image sideslip status signal is OFF, the 1st and 2nd image revolution means which outputs by not performing revolution processing is provided, and said transmitting image-processing means is constituted from said 1st image-processing means. Said display image processing means Said 2nd image revolution means, The image sending set according to claim 6 which consists of rectangle field extract means to cut a rectangle field from the revolution image information outputted from said 2nd image revolution means, and to generate said display image information.

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[Claim 8] An image sideslip display signal generation means is pictorial communication equipment according to claim 6 which consists of image sideslip display signal generation means to provide a changeover switch and to generate ON of an image sideslip status signal, and OFF with said changeover switch.

[Claim 9] An image sideslip display signal generation means is pictorial communication equipment according to claim 6 which consists of direction sensing means of a body which the direction of a body in every direction is sensed, and turn ON an image sideslip status signal, and turn OFF \*\* at the time of a body sideslip when other.

[Claim 10] Pictorial communication equipment according to claim 1 characterized by what at least one parallel lines which are parallel divide the display screen into the shorter side of a screen, and a display image is rotated 90 degrees, and is simultaneously displayed when dividing one screen and displaying two or more images.

[Claim 11] The pictorial communication equipment according to claim 10 which compounds an image composition indication signal generation means generate an image composition indication signal, and said self-portrait information and said partner image information so that a long side may touch, rotates 90 degrees to the sideslip direction and the hard flow of said pictorial communication equipment, possesses an image-processing means output the display image information reduced to the magnitude to which an image is settled in a screen, and is characterized by to express said display image information as said image-display means.

[Claim 12] An image composition means to output the synthetic image information to which the image-processing means compounded said self-portrait information and said partner image information so that a long side might touch, An image revolution means to output the revolution image information which rotated said synthetic image information 90 degrees to the sideslip direction and hard flow of said pictorial communication equipment, An image cutback means to output the cutback image information which reduced said revolution image information to the magnitude settled in a screen, The image communication device possessing an image selection means to choose said partner image information when said image composition indication signal is OFF, to choose said cutback image information when said image composition indication signal is ON, and to output as said display image information according to claim 11.

[Claim 13] An image composition indication signal generating means is pictorial communication equipment according to claim 11 which consists of image composition indication signal generating means to provide a changeover switch and to generate ON of an image composition indication signal, and OFF with said changeover switch.

[Claim 14] An image composition indication signal generating means is pictorial communication equipment according to claim 11 which consists of direction sensing means of a body which the direction of a body in every direction is sensed, and turn ON an image composition indication signal, and turn OFF \*\* at the time of a body sideslip when other.

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[Translation done.]